Amendments To The Claims

Claim 1 (previously presented): A microphone system comprising:

a plurality of collinear microphones regularly spaced according to pluralities of distinct spacings with a common center;

a plurality of microphone signal adders, wherein the microphones of each set of microphones having one of said spacings are connected to the same signal adder;

a plurality of first filters, each connected to receive an output of a corresponding one of the microphone signal adders;

a plurality of second filters each connected to an output of one of the microphones such that each microphone is connected to a microphone signal adder through the second filter, wherein each of the second filters implements one of a plurality of windowing functions that are each a function of one of the pluralities of spacings associated with the one of the microphones with which the second filter is connected; and

an output adder connected to receive the output of the first filters and supply the combined signal as an output, wherein the frequency response of the first filters is such that the combined signal is flat over a selected frequency range in a selected direction.

Claim 2 - 3 (Canceled)

Claim 4 (previously presented): The microphone system of claim 1, wherein the windowing functions are Kaiser-Bessel window functions.

Claim 5 (previously presented): The microphone system of claim 1, wherein the second filters implement a delay.

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Claim 6 (Original): The microphone system of claim 5, wherein the delay of a given second filter is proportional to the spacing of the set of microphones to which the microphone it belongs corresponds, and wherein all the second filters depend upon the same function of a steering angle.

Claim 7 (Original): The microphone system of claim 1, wherein the frequency response of each of the first filters is a continuous function of frequency, the response of the first filter corresponding to the smallest spacing being zero below a first frequency, constant above a second frequency and linear between the first and second frequency, the response of the first filter corresponding to the largest spacing being zero above a third frequency, constant below a fourth frequency and linear between the third and fourth frequency, and wherein for each of the other first filters, the response is zero outside of a respective frequency range and inside the respective frequency range linearly increasing below a respective intermediate frequency and linearly decreasing above the respective intermediate frequency.

Claim 8 (Original): The microphone system of claim 1, wherein the selected frequency range is greater than five octaves.

Claim 9 (Original): The microphone system of claim 1, wherein the selected frequency range is from 20 hertz to 20 kilohertz.

Claim 10 (Original): The microphone system of claim 1, wherein the number of spacings is N and the spacings are $2^{(i-1)}d$, where i runs from one to N and d is the smallest spacing.

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Claim 11 (Original):   The microphone system of claim 10, wherein N is equal to nine.

Claim 12 (Original):   The microphone system of claim 10, wherein d is in a range of 0.5 centimeters to ten centimeter.

Claim 13 (Original):   The microphone system of claim 10, wherein the number of microphones corresponding to each of the spacings is three or more.

Claim 14 (Original):   The microphone system of claim 13, wherein a microphone belongs to a plurality of the sets of microphones having one of said spacings.

Claim 15 (Original):   The microphone system of claim 1, further comprising:

a second plurality of microphone signal adders, wherein the microphones of each set of microphones having one of said spacings are connected to the same second signal adder;

a second plurality of first filters, each connected to receive the output of a corresponding one of the second microphones signal adders; and

an second output adder connected to receive the output of the second plurality of first filters and supply the combined signal as a second output, wherein the frequency response of the second plurality of first filters is such that the combined signal is flat over a selected frequency range in a second selected direction.

Claim 16 - 56 (canceled)

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